WHAT IS CLAIMED IS:

1. A radio frequency power supply structure for use in a device generating plasma by charging a plate-like electrode with a radio frequency power, said radio frequency power supply structure supplying said electrode with the radio frequency power from an RF cable, wherein said RF cable is positioned on an extended plane of a plane formed by said electrode to connect to said electrode at a connecting portion provided on an end peripheral portion of said electrode.

2. A radio frequency power supply structure as claimed in Claim 1, wherein the end peripheral portion of said electrode where said connecting portion is provided forms a right angle to said RF cable on said plane formed by said electrode at said connecting portion.

3. A radio frequency power supply structure as claimed in Claim 1 or 2, wherein said electrode forms a longitudinal grid plate shape having two lateral electrodes forming two mutually opposed end peripheral portions of said electrode and a plurality of longitudinal electrodes arranged between said two lateral electrodes so as to connect to said two lateral electrodes.

4. A radio frequency power supply structure as claimed in Claim 3, wherein said RF cable is directed in parallel with said plurality of longitudinal electrodes to connect to said electrode at said connecting portion.

5. A radio frequency power supply structure as claimed in Claim 4, wherein said RF cable directly connects to one of said plurality of longitudinal electrodes at said connecting portion.

6. A radio frequency power supply structure as claimed in any one of Claims 1 to 5, wherein a core cable of said RF cable connects to said electrode so as to form a smoothly curved continuous surface at said connecting portion.

7. A radio frequency power supply structure as claimed in any one of Claims 1 to 5, wherein an outer shell, functioning as earth, of said RF cable has its front end elongated to the position of said electrode at said connecting portion to form an elongated portion that covers said connecting portion.

8. A plasma CVD device comprising a radio frequency power supply structure as claimed in any one of Claims 1 to 7.